NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

TREE/SHRUB PRUNING

(Ac.)

CODE 660

DEFINITION

The removal of all or parts of selected branches, leaders, or roots from trees and shrubs.

PURPOSE

This practice is applied to support one or more of the following purposes:

- Maintain or improve plant productivity, health and vigor, and/or reduce excessive plant pest pressure.
- Develop desired plant structure, foliage or branching density, or rooting length.
- Improve the composition and vigor of understory plants.
- Maintain or improve soil quality and organic matter content.
- Reduce wildfire and/or safety hazards.
- Reduce energy use during field operations.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on any area with trees or shrubs.

CRITERIA

General Criteria Applicable to All Purposes

Maintain the health and vigor of trees and shrubs by removing the minimum amount of living biomass required to achieve the pruning objective. Maintain recommended crown ratios for the treated species.

Use proper pruning methods, techniques and timing for each species to achieve the pruning objective.

Use proper pruning procedure(s) and tools to minimize stress and damage to the residual tree or shrub.

Time all pruning and shearing activities to minimize negative impacts on the site, soils, and vegetation.

Do not create conditions (e.g., sap flow from fresh cuts) that will attract detrimental insects or increase the potential for disease.

Schedule the timing of pruning and shearing operations to minimize disturbance to seasonal wildlife activities.

Do not paint or treat pruning cuts, or “top” (pollard) trees or shrubs unless specifically recommended for the intended purpose as described by the International Society of Arboriculture.

Sanitize all equipment after pruning a forest unit, even if there is no apparent disease.

Additional Criteria for Maintaining Health and Vigor

When pruning diseased wood, disinfect pruning and shearing tools as needed to minimize the spread of pathogens.

When root pruning for maintenance or renovation of existing trees, prune outside the tree drip-line (unless root competition with adjacent crop or forage areas becomes too great) and to a depth appropriate for the species and site.

For affected species and sites, limit the spread of root-graft transmitted diseases by pruning roots at distances recommended for the species, site, and size of the tree.

Additional Criteria to Maintain or Improve Soil Quality

Do not burn vegetative residues except where wildfire hazard or threats from diseases and insects are of concern, or other management objectives are best achieved through burning.

Distribute residue throughout the site; however, moving residues away from stems of trees or shrubs is acceptable. Residues may be chipped or mulched to speed incorporation into the soil.

Additional Criteria for Reducing Wildfire and/or Safety Hazards

When pruning is used to reduce wildfire hazard, or is conducted for other purposes in areas that are susceptible to wildfire, treat woody residue to reduce wildfire risk. Use NRCS Conservation Practice Standard (CPS) *Woody Residue Treatment (Code 384)*.

When pruning for wildfire hazard reduction, the final pruned branch height (at the bole) may need to be higher with trees whose branches droop, to achieve the desired separation between the tree crown and ground vegetation.

Additional Criteria to Reduce Energy Use

Where alternative pruning methods are available, reduce the total energy consumption associated with pruning by using energy-efficient and cost-effective methods.

Additional Criteria for Developing Desired Plant Structure, Foliage or Branching Density

Black Walnut and Conifers (Sawtimber)

Sever live or dead limbs from the first 17 feet of the bole of the tree to improve overall wood quality.

This practice should be confined to immature stands and reserved for species and individual trees, which are capable of producing quality wood products.

This practice should be applied to trees less than 12 inches in diameter and at least 30 years prior to harvest to obtain 4-5 inches of clear wood on each side of the log.

Ideally, this practice should be applied to 20 to 150 crop trees selected after thinning.

Pruned trees must be sufficiently released so they will potentially grow a minimum of 3 inches per decade.

Black Walnut (Sawtimber)

Prune black walnut and other hardwoods where site index is greater than 75.

Black walnut should be pruned during the dormant season (late fall after leaf fall through mid winter). Never prune during the fast growing season of late spring or early summer.

Prune trees when less than 10" DBH and preferably less than 6" DBH. Remove lower limbs less than 2 inches in diameter, and preferably 1 inch in diameter.

Never prune more than half the tree's total height or more than 20 percent of the live crown in one growing season.

The first pruning should be at least 9 feet if possible, but if practical and within the guidelines for the statement above, prune to 17 feet.

Use a pruning saw to remove limbs. Do not cut the stub flush with the tree. Cut just outside the branch collar. The first cut should be an under cut 1/3 through on larger heavy limbs, one inch beyond the branch collar. The second cut should be from the top to remove the limb. The third cut should be the down cut applied just outside the branch collar. See Figure 1.

Pruning should be restricted to no more than 100 crop trees per acre.

Corrective terminal pruning may be done at any age prior to side-limb pruning.

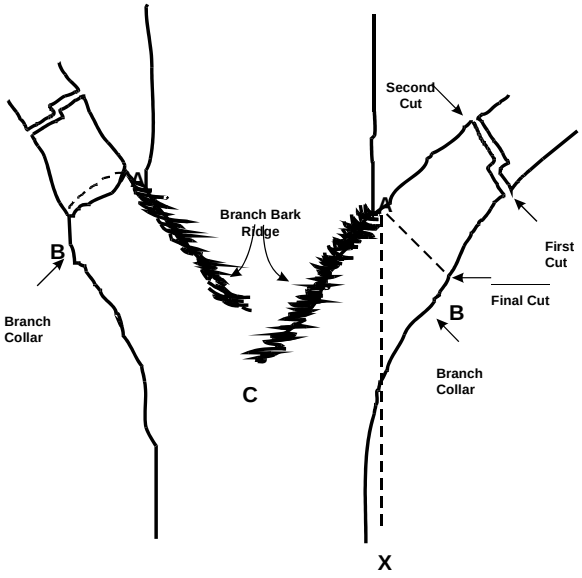


Figure 1. —Hardwood pruning (see figure 2 for conifer pruning).

Prune trees according to the following steps:

1. ***Locate the branch bark ridge***
2. ***Find A (outside edge of branch bark ridge).***
3. ***Find B (swelling where branch meets branch collar. If B is difficult to determine drop a line from A: the angle XAC is equal to the angle XAB (see figure 1). Stub the branch to be pruned using a first cut from below and a second cut from above.***
4. ***Make the final cut on line AB.***
5. ***Do not cut behind the branch bark ridge.***
6. ***Do not leave stubs.***
7. ***Do not cut into the branch collar***

Conifers (Sawtimber)

Prune white and red pine where site index is greater than 65. Prune Norway spruce where site index is greater than 75.

Conifers may be pruned during any season, however, late summer, fall, and early winter are recommended.

Use a pruning saw to remove limbs. Do not cut the stub flush with the tree. Cut just outside the branch collar.

Do not remove more than the lower half of live branches at a time.

The first pruning should be applied when the trees are 20 to 30 feet. Remove branches 7-9 feet in height.

Plan later operations to remove branches to 17 feet limiting pruning to two operations. Attempt to prune branches before they become 1 ½ inches in diameter.

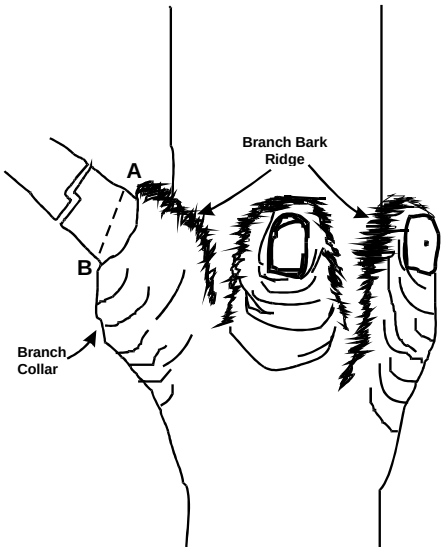
Only potential crop trees should be pruned. In the average pine plantation, 20 – 150 crop trees should be selected for pruning.

All slash should be loped to no more than 2 feet above the ground to reduce fire hazard and stimulate decomposition.

Use a pruning saw to remove limbs. Do not cut the stub flush with the tree. Cut just outside the branch collar. The first cut should be an under cut 1/3 through on larger heavy limbs, one inch beyond the branch collar. The second cut should be from the top to remove the limb. The third cut should be the down cut applied just outside the branch collar.

Do not remove more than the lower half of the live branches at any one time.

The first pruning should be applied when the trees are 20 to 30 feet in height. Remove branches 7-9 feet in height.



Conifers

Figure 2. —Conifer pruning.

Prune trees using the following steps:

8. ***Locate the branch ridge***
9. ***Find A (outside edge of branch bark ridge).***
10. ***Find B (swelling where branch meets branch collar). Stub the branch to be pruned using a first cut from below and a second cut from above.***
11. ***Make a final cut on line AB***
12. ***Do not cut behind the branch bark ridge.***
13. ***Do not leave stubs.***
14. ***Do not cut into the branch collar.***

Christmas Trees

See Growing Christmas Trees in West Virginia by A. Edwin Grafton, 2014.

Shearing - Most Christmas trees are sheared annually beginning when trees are around 2 feet tall. Shear pines between early June and mid-July before new growth hardens. Spruces and firs, including Douglas-fir, can be sheared generally from July through March annually. Most growers prefer shearing the current year's marketable trees in July through October. Non-marketable spruce and fir trees can be sheared during the same period of time allows. However, the spruce and fir can be sheared between November and March. Make cuts just above a single bud. Start pruning Scotch pine when new needle growth is ¾ as long as last year's needle growth.

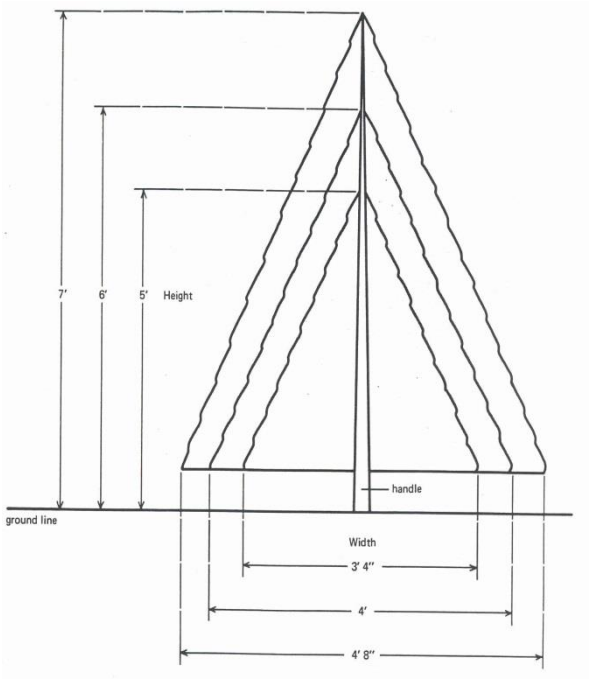


Figure 3. Ideal Christmas tree shape – the tree should be 1 ½ feet high for each foot of width.

Reducing Leader Growth

Spruce or fir – Select a group or cluster of buds (4 or more) at a point about 12 inches above the last whorl. These will form a false whorl the next season and increase density. At least 2 ½ inches above this group of buds (or false whorl), select a strong bud. Cut the terminal leader about 1/8" above the bud and at a 45 degree angle. Remove any buds between the tip and false whorl. Cut back several inches of the upper branch tips to prevent them from turning up to become leaders.

Pines – Cut leader off at 45 degree angle to encourage the formation of a single strong

leader bud on the high point of the cut. Leader growth should be about 12 inches. The top whorl should be cut back about 40 percent as long as the sheared leader to prevent the tips from turning up as new leader growth. This should be done at the same time as shearing.

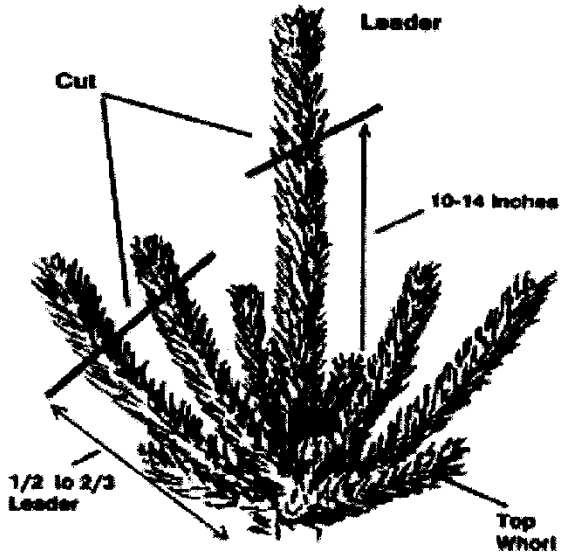


Figure 4. - Christmas tree pruning.

Basal Pruning – Unwanted branches between the bottom of the Christmas tree and ground can be removed. The selected basal whorl should be as low as practical, but still provide the needed handle.

If wildlife management is a landowner objective this practice may be in conflict with suggested practices – See Wildlife Upland Management – Code 645.

CONSIDERATIONS

Removing live branches and foliage decreases tree and shrub energy reserves and ability to photosynthesize. Improper pruning methods that remove too much material, or lead to structural defects and breakage, can impact the health and vigor of trees and shrubs.

Consider the potential impacts of planned vegetative residue treatment methods on soil, water, animal, plant, energy, and air resources (e.g., retaining residues on site vs. removal or burning). Soil quality is improved through inputs of vegetative residue that supply nutrients and organic matter.

If needed, treat vegetative residue to limit threats from diseases or insects, maintain operational capacity, or to speed residue incorporation into soils. Use NRCS CPS *Woody Residue Treatment (Code 384)*.

Consider estimated costs and projected economic benefits of pruning for production of knot-free wood or other specialized forest products.

When pruning for disease or pest control (e.g.,mistletoe, blister rust), consider existing tree-to-tree spacing, vertical tree structure, degree of infection, stand age, and site quality. If it is necessary to cut or kill entire trees to limit disease or pest damage, use NRCS CPS *Forest Stand Improvement (Code 666).*

For species susceptible to sun scald, consider possible damage that may occur to a newly-exposed tree bole or shrub, especially on south-facing slopes.

Consider how to use branches and other plant parts removed during pruning as special forest products, or for other purposes.

In urban areas, special considerations should be for safety hazards.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for applying this practice, including design and installation requirements for achieving the intended purpose. Locate the area to be pruned on the conservation plan map, and document the purpose(s) for pruning in the conservation plan.

At a minimum, specifications shall include:

Requirements for operation and maintenance of the practice shall be incorporated into site specifications.

The following will be identified in the conservation plan narrative (as appropriate):

- Location,
- ***Purpose,*** Objective(s) for pruning,
- Species

- Minimum and maximum amount of live branch and foliage to be cut or removed,
- Site Limitations
- Treatment method by species or vegetation type,
- Equipment
- Number of trees/shrubs per acre to be treated,
- Pruning Height
- ***Season (Dates)*** Timing relative to considerations for disease, insects, and wildlife impacts,
- Mitigation measures, if needed, to reduce wildfire hazard or the potential for disease and insect pests.
- Any required permits including WV-CPA-052 or similar environmental evaluation documentation
- Operation and Maintenance Plan

OPERATION AND MAINTENANCE

Periodically inspect plant condition and conduct additional treatment or mitigation if needed.

Control locally invasive and noxious plants that may establish due to increased light penetration.

Bold italics indicate changes made or information added to the national standard by West Virginia.

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